

May 4 - 6, 1989

Embryonic Origins of Defective Heart Development

Chairpersons:

Dale E. Bockman, Ph.D.
Medical College of Georgia

Margaret L. Kirby, Ph.D.
Medical College of Georgia

Key Bridge Marriott Hotel
Alexandria, Virginia

Conference Theme:

Many defects of the heart and great vessels originate during an early embryonic period. This conference will allow a synthesis of current knowledge by bringing together investigators who approach the questions concerning cardiovascular development from different perspectives. The latest insights into development of specific regions of the heart, outflow tract, and vessels will be presented along with hemodynamics and neural control. The importance of extracellular matrix and cell-cell interactions will be presented. Membrane and control phenomena, including the role of membrane channels, will be integrated with the molecular biology of cardiovascular components and with angiogenesis. Normal development will be contrasted with cardiovascular dysmorphogenesis, highlighting recent advances using new models of cardiac malformation.

Thursday, May 4, 1989

Chairpersons:

*Dale E. Bockman, Ph.D.
Margaret L. Kirby, Ph.D.
Medical College of Georgia
Augusta, GA*

8:00 AM - 8:50 AM Registration

9:00 AM - 9:05 AM
Goals and plan of the conference
Dale E. Bockman, Ph.D.

9:05 AM - 9:30 AM
Overview of problems and approaches in heart development
Margaret L. Kirby, Ph.D.

9:30 AM - 12:20 PM
Session I: Normal and Defective Development of the Heart and Related Structures

Session Chairs:

*Atsuyoshi Takao, M.D.
L. H. S. Van Mierop, M.D.*

9:30 AM - 9:40 AM
1. Introduction to congenital heart disease
*L. H. S. Van Mierop, M.D.
University of Florida, Gainesville, FL*

9:40 AM - 9:55 AM
2. Inductive interactions in heart development: Role of adherens
*Roger R. Markwald, Ph.D.
Medical College of Wisconsin, Milwaukee, WI*

9:55 AM - 10:05 AM Discussion

10:05 AM - 10:20 AM
3. Development of the outflow tract
*Jose M. Icardo, M.D.
University of Cantabria, Santander, Spain*

10:20 AM - 10:30 AM Discussion

10:30 AM - 11:00 AM Coffee Break

11:00 AM - 11:15 AM

4. Hemodynamics of the developing cardiovascular system

Edward B. Clark, M.D.

University of Rochester, Rochester, NY

11:15 AM - 11:25 AM Discussion

11:25 AM - 11:40 AM

5. Role of mechanical stimulation in cardiac development

Louis Terracio, Ph.D.

University of South Carolina, Columbia, SC

11:40 AM - 11:50 AM Discussion

11:50 AM - 12:20 PM

6. Summary remarks and general discussion

Atsuyoshi Takao, M.D.

The Heart Institute of Japan, Tokyo, Japan

and

L. H. S. Van Mierop, M.D.

University of Florida, Gainesville, FL

12:20 PM - 2:00 PM Conference Luncheon

2:00 PM - 5:00 PM

Session II: Cell-cell Interactions and Extracellular Matrix

Session chairs:

Hynda K. Kleinman, Ph.D.

Fiona M. Funderburg, Ph.D.

2:00 PM - 2:15 PM

7. Role of basement membrane in development

Hynda K. Kleinman

NIDR, National Institutes of Health, Bethesda, MD

2:15 PM - 2:25 PM Discussion

2:25 PM - 2:40 PM

8. Cell adhesion molecules in heart development

Stanley Hoffman, Ph.D.

The Rockefeller University, New York, NY

2:40 PM - 2:50 PM Discussion

2:50 PM - 3:05 PM

9. Role of the extracellular matrix in the post-septation development of the heart

Thomas K. Borg, Ph.D.

University of South Carolina, Columbia, SC

3:05 PM - 3:15 PM Discussion

3:15 PM - 3:45 PM Coffee Break

3:45 PM - 4:00 PM

10. Cell-cell and cell-matrix communication
Richard D. Veenstra, Ph.D.
State University of New York, Syracuse, NY

4:00 PM - 4:10 PM Discussion

4:10 PM - 4:25 PM

11. Elastogenesis in the developing cardiovascular system
Thomas H. Rosenquist, Ph.D.
Medical College of Georgia, Augusta, GA

4:25 PM - 4:35 PM Discussion

4:35 PM - 5:00 PM

12. Summary Remarks and General Discussion
Hynda K. Kleinman, Ph.D.
NIDR, National Institutes of Health, Bethesda, MD
and
Fiona M. Funderburg, Ph.D.
Medical College of Wisconsin, Milwaukee, WI

8:00 PM - 10:00 PM POSTER SESSION

Friday, May 5, 1989

9:00 AM - 12:00 NOON

Session III: Membrane and Control Phenomena

Session Chairs:

*Jonas B. Galper, M.D., Ph.D.
Achilles J. Pappano, Ph.D.*

9:00 AM - 9:15 AM

13. Development of neural regulation during cardiogenesis *in oculo*
*Diane C. Tucker, Ph.D.
University of Alabama, Birmingham, AL*

9:15 AM - 9:25 AM Discussion

9:25 AM - 9:40 AM

14. Development of autonomic neural effector transmission to the heart
*Achilles J. Pappano, Ph.D.
University of Connecticut Health Center, Farmington, CT*

9:40 AM - 9:50 AM Discussion

9:50 AM - 10:05 AM

15. The physiologic expression of alpha-adrenergic receptor development
*Michael R. Rosen, M.D.
Columbia University, New York, NY*

10:05 AM - 10:15 AM Discussion

10:15 AM - 10:45 AM Coffee Break

10:45 AM - 11:00 AM

16. Receptors and G protein in development of the embryonic chick
*Jonas B. Galper, M.D., Ph.D.
Harvard Medical School, Boston, MA*

11:00 AM - 11:10 AM Discussion

11:10 AM - 11:25 AM

17. Regulation of cardiac muscarinic receptors by phosphorylation
*M. Marlene Hosey, Ph.D.
The Chicago Medical School, Chicago, IL*

11:25 AM - 11:35 AM Discussion

11:35 AM - 12:00 NOON

18. Summary remarks and general discussion

Jonas B. Galper, M.D., Ph.D.

Harvard Medical School, Boston, MA

and

Achilles J. Pappano, Ph.D.

University of Connecticut Health Center, Farmington, CT

12:00 NOON - 2:00 PM Conference Luncheon

2:00 PM - 5:30 PM

Session IV: Membrane Channels

Session Chairs:

Robert L. DeHaan, Ph.D.

Neil M. Nathanson, Ph.D.

2:00 PM - 2:15 PM

19. Development of gap junctions

Robert L. DeHaan, Ph.D.

Emory University Health Science Center, Atlanta, GA

2:15 PM - 2:25 PM Discussion

2:25 PM - 2:40 PM

20. Potassium channels and repolarization

Louis J. DeFelice, Ph.D.

Emory University Health Science Center, Atlanta, GA

2:40 PM - 2:50 PM Discussion

2:50 PM - 3:05 PM

21. Regulation of muscarinic receptor and G-protein expression during cardiac development.

Neil M. Nathanson, Ph.D.

University of Washington, Seattle, WA

3:05 PM - 3:15 PM Discussion

3:15 PM - 3:45 PM Coffee Break

- 3:45 PM - 4:00 PM
22. Na⁺ transport systems in embryonic heart cells: Properties and development
Christiān Frelin, Ph.D.
Centre de Biochimie du CNRS, Universite de Nice, France
- 4:00 PM - 4:10 PM Discussion
- 4:10 PM - 4:25 PM
23. Sodium pump and sodium/calcium exchange
W. Jonathan Lederer, M.D., Ph.D.
University of Maryland, Baltimore, MD
- 4:25 PM - 4:35 PM Discussion
- 4:35 PM - 4:50 PM
24. Normal and altered development of membrane currents in the embryonic heart
Tony L. Creazzo, Ph.D.
Medical College of Georgia, Augusta, GA
- 4:50 PM - 5:00 PM Discussion
- 5:00 PM - 5:30 PM
25. Summary remarks and general discussion
Robert L. DeHaan, Ph.D.
Emory University Health Science Center, Atlanta, GA
and
Neil M. Nathanson, Ph.D.
University of Washington, Seattle, WA

Saturday, May 6, 1989

- 9:00 AM - 12:30 PM
Session V: Molecular Biology, Contractile Proteins, Angiogenesis
- Session Chairs:
Radovan Zak, Ph.D.
Drew M. Noden, Ph.D.

- 9:00 AM - 9:15 AM
26. Control of myosin and actin expression in the heart
Radovan Zak, Ph.D.
University of Chicago, Chicago, IL

9:15 AM - 9:25 AM Discussion

- 9:25 AM - 9:40 AM
27. Precocious expression of neurofilament-associated genes during neural crest development
Gary S. Ciment, Ph.D.
Oregon Health Sciences University, Portland, OR
- 9:40 AM - 9:50 AM Discussion
- 9:50 AM - 10:05 AM
28. Protein phosphorylation/dephosphorylation systems in developing chick heart
Robert W. Wrenn, Ph.D.
Medical College of Georgia, Augusta, GA
- 10:05 AM - 10:15 AM Discussion
- 10:15 AM - 10:45 AM Coffee Break
- 10:45 AM - 11:00 AM
29. Origins and patterning of craniofacial and cardiac blood vessels
Drew M. Noden, Ph.D.
Cornell University, Ithaca, NY
- 11:00 AM - 11:10 AM Discussion
- 11:10 AM - 11:25 AM
30. Cardiac metabolism during development
Joanne S. Ingwall, Ph.D.
Harvard Medical School, Boston, MA
- 11:25 AM - 11:35 AM Discussion
- 11:35 AM - 11:50 AM
31. Migration in early embryonic development
Jean-Loup Duband, Ph.D.
CNRS and Ecole Normale Supérieure, Paris, France
- 11:50 AM - 12:00 NOON Discussion
- 12:00 NOON - 12:30 PM
32. Summary remarks and general discussion
Radovan Zak, Ph.D.
University of Chicago, Chicago, IL
and
Drew M. Noden, Ph.D.
Cornell University, Ithaca, NY
- 12:30 PM - 2:00 PM Conference Luncheon

2:00 PM - 5:30 PM

Session VI: Experimentally Induced Developmental Defects

Session Chairs:

*Arthur Garson, Jr., M.D.
Constance Weinstein, Ph.D.*

2:00 PM - 2:15 PM

33. Cardiovascular defects associated with retinoic acid, alcohol, and other agents

*Roger N. Ruckman, M.D.
Children's Hospital National Medical Center, Washington, DC*

2:15 PM - 2:25 PM Discussion

2:25 PM - 2:40 PM

34. Alteration of cardiogenesis after neural crest ablation

*Margaret L. Kirby, Ph.D.
Medical College of Georgia, Augusta, GA*

2:40 PM - 2:50 PM Discussion

2:50 PM - 3:05 PM

35. Altered development of aortic arch arteries

*Dale E. Bockman, Ph.D.
Medical College of Georgia, Augusta, GA*

3:05 PM - 3:15 PM Discussion

3:15 PM - 3:45 PM Coffee Break

3:45 PM - 4:00 PM

36. Hemodynamic changes after neural crest ablation

*Linda Leatherbury, M.D.
Medical College of Georgia, Augusta, GA*

4:00 PM - 4:10 PM Discussion

4:10 PM - 4:25 PM

37. Blood flow patterns in the developing heart after neural crest ablation

*Makoto Nishibatake, M.D.
The Heart Institute of Japan, Tokyo, Japan*

4:25 PM - 4:35 PM Discussion

4:35 PM - 4:50 PM

38. Experimentally induced long Q-T syndrome in the chick embryo

James L. Christiansen, M.D.

Texas Children's Hospital, Houston, TX

4:50 PM - 5:00 PM Discussion

5:00 PM - 5:30 PM

39. Summary remarks and general discussion

Arthur Garson, Jr., M.D.

Texas Children's Hospital, Houston, TX

and

Constance Weinstein, Ph.D.

National Heart, Lung, and Blood Institute, NIH, Bethesda, MD